WHAT IS CLAIMED IS:

1. A semiconductor optical transmitter including a plurality of active layers formed on a semiconductor substrate, the optical transmitter comprising:

a distributed feedback laser diode including a grating for reflecting light with a predetermined wavelength and a first active layer for oscillating received light from the grating;

an electro-absorption modulator including a second active layer for receiving light from the first active layer, wherein the received light intensity is modulated through a change of absorbency in accordance with an applied voltage;

an optical amplifier including a third active layer for amplifying received light from the second active layer;

a first optical attenuator between the first active layer and the second active layer; and

a second optical attenuator between the second active layer and the third active layer.

2. The semiconductor optical transmitter as claimed in claim 1, wherein the semiconductor optical transmitter is a semiconductor monolithic integrated optical transmitter.

3. The semiconductor monolithic integrated optical transmitter as claimed in claim 2, wherein the first optical attenuator is formed between the distributed feedback laser diode and the electro-absorption modulator.

4. The semiconductor monolithic integrated optical transmitter as claimed in claim 3, wherein the first optical attenuator mitigates hole pile-up.

5. The semiconductor monolithic integrated optical transmitter as claimed in claim 2, wherein the second optical attenuator is formed between the electro-absorption modulator and the semiconductor optical amplifier.

6. The semiconductor monolithic integrated optical transmitter as claimed in claim 5, wherein the second optical attenuator adjusts intensities of received light in the semiconductor optical amplifier.

7. The semiconductor monolithic integrated optical transmitter as claimed in claim 2, wherein the distributed feedback laser diode, the electro-absorption modulator and the semiconductor optical amplifier, each have respective different energy bandgaps.

8. The semiconductor monolithic integrated optical transmitter as claimed in claim 2, wherein an energy bandgap of the electro-absorption modulator is largest and an energy bandgap of the distributed feedback laser diode is smallest.

9. The semiconductor monolithic integrated optical transmitter as claimed in claim 2, wherein the third active layer of the optical amplifier has an adjustable gain in accordance with an applied current.

10. The semiconductor monolithic integrated optical transmitter as claimed in claim 2, wherein the third active layer of the optical amplifier has a predetermined gain peak.

11. The semiconductor monolithic integrated optical transmitter as claimed in claim 9, wherein the optical amplifier has a linear gain and a non-linear range mode of operation.

12. The semiconductor monolithic integrated optical transmitter as claimed in claim 11, wherein the optical amplifier in the non-linear gain mode compensates for frequency chirp of the EA MOD.